

* SWBAT solve momentum and impulse word problems

Sep 6-2:31 PM

Welcome!!!

SECA Physics
Wednesday 11 December 2013

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* Pick up:

- white board, eraser, marker
- slip of paper (for later)

Centering...

Test next
Tuesday!



Opening Question:

How many can you think of:

Safety from taking more TIME to bring something to a stop

BASEBALL GLOVE

AIR BAGS

HELMETS

SPORTS PADDING

GYM MATS

GRASS/SAND

BRAKES!

FOLLOW-THRU
CLEATS
TO GO

Sep 7-7:04 AM

Impulse is $\Delta \text{mom.}$ CHANGE in momentum

Impulse = Force X Time

$$\rightarrow I = F \cdot t$$

Safety: Big forces = OUCH!!!

When something stops, it changes momentum

Less OUCH if more _____ to stop!

Very useful: How many equations can we make?
ON YOUR WHITE BOARD

$$\rightarrow I = \Delta \text{mom.}$$

$$\Rightarrow \Delta \text{mom} = F \cdot t$$

$$\Delta \text{mom} = m \cdot \Delta v$$

$$\Delta \text{mom} = \text{mom}_2 - \text{mom}_1$$

INERTIA IN MOTION
 $\text{mom.} = m \cdot v$

Dec 5-9:21 AM

Worksheet:

On your white board:

- what are you given in the question?
- what do you want to find out?
- so then, which equation?

#1 $m = 1500 \text{ kg}$
 $v = 5 = 27 \text{ m/s}$
 $\text{mom} = ?$

$$\text{mom} = m \cdot v$$

#2 Bowling
 m
 s
 $\text{mom} = ?$

BASEBALL
 m
 s
 $\text{mom} = ?$

$$\text{mom} = m \cdot v$$

#3 A) F
 t
 $I = ?$

$$I = F \cdot t$$

B) $\Delta \text{mom} = ?$

$$I = \Delta \text{mom}$$

#4 a) Δmom
 $I = ?$

$$I = \Delta \text{mom}$$

B) I
 t
 $F = ?$

$$I = F \cdot t$$

UNITS

$$7 \text{ kg} \cdot 1.5 \text{ m/s} = 10.5 \text{ kg} \cdot \text{m/s}$$

$$\text{N} \cdot \text{s} = \frac{\text{kg} \cdot \text{m}}{\text{s}^2} \cdot \text{s} = \frac{\text{kg} \cdot \text{m}}{\text{s}}$$

SAME THING

EITHER OK TO USE
 $\text{N} \cdot \text{s}$
 $\text{kg} \cdot \text{m/s}$

Dec 11-10:07 AM

Daily 3 Questions

CP: Create and solve a word problem involving impulse

- * Every day except test/project days
- * 3 Questions on the topics of the day
- * Main source of daily points
- * I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

You can't get your points if you don't have your NAME!!!

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1. What is one safety device that increases time of stopping to decrease force?

GLOVE, HELMET, AIRBAG . . .

2. Force = 200 N and Time = 0.05 sec

What is the impulse?

$$I = F \cdot t = 200 \text{ N} \cdot 0.05 \text{ s} = 10 \text{ N} \cdot \text{s}$$

3. (Very easy question!) A ball experienced a change in momentum of 6.0 kg*m/s. What is the impulse on the ball?

$$I = \Delta \text{mom} = 6 \frac{\text{kg} \cdot \text{m}}{\text{s}}$$

Dec 2-7:55 AM